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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|----------------------|------------------|
| 09/681,374 | 03/27/2001 | Xiao-Dong Sun | RD-27727 | 3259 |
| 6147 | 7590 | 04/20/2004 | EXAMINER | |
| GENERAL ELECTRIC COMPANY GLOBAL RESEARCH PATENT DOCKET RM. BLDG. K1-4A59 SCHENECTADY, NY 12301-0008 | | | MACCHIAROLO, PETER J | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2879 | |

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------|--|-----------------------------------|--|
| Advisory Action | Application No. 09/681,374 | Applicant(s) SUN ET AL. | |
| | Examiner Peter J Macchiarolo | Art Unit 2879 | |

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 02 April 2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

- a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.
- b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☒ The proposed amendment(s) will not be entered because:
- (a) ☒ they raise new issues that would require further consideration and/or search (see NOTE below);
 - (b) ☐ they raise the issue of new matter (see Note below);
 - (c) ☒ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
 - (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: See Continuation Sheet.

3. ☐ Applicant's reply has overcome the following rejection(s): _____.
4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☐ The a) ☐ affidavit, b) ☐ exhibit, or c) ☐ request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☐ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: _____.

Claim(s) objected to: _____.

Claim(s) rejected: _____.

Claim(s) withdrawn from consideration: _____.

8. ☐ The drawing correction filed on _____ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____.
10. ☐ Other: _____

Continuation of 2. NOTE: The Amendment to independent claims 1 and 7 raise new issues that would require further consideration and searching.


The arguments presented for independent claims 12 and 18 are not persuasive and therefore, the rejection stands.

First, Applicant alleges "Lal does not teach or even suggests a composition comprising oxygen-containing compounds of alkaline-earth metals and carbon nanotubes," at Remarks page 8, (1). The Examiner respectfully submits that Sugiyama discloses this composition in the abstract. Therefore, the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Applicant is directed to the 35 USC 103 obviousness reject set forth in the final office action.

Second, Applicant alleges that Lal does not refer to the electron-emitting property of the claimed composition, at Remarks page 8 (2). The Examiner respectfully disagrees. The claimed electron-emitting property in question is merely that the nanotubes emit electrons (see claims 12 and 18). Lal discloses, "[t]he electrical properties of carbon nanotubes are also highly tunable." Although Lal does not expressly disclose the carbon nanotubes having a specific electron-emitting value, the "electrical properties" Lal discloses refers to the electron-emitting properties, since it is known that nanotubes emit electrons. Further, Applicant has failed to traverse this fact (see final office action, para. 15 and Applicant's remarks to rejection) and is therefore believed to agree with the Examiner. Furthermore, in view of Sugiyama's teachings and publication date, coupled with Lal's teaching and publication date (i.e. that replacing carbon fibers with carbon nanotubes is desirable), Lal motivates one skilled in the art to substitute carbon nanotubes for Sugiyama's carbon fibers (see Final office action, para. 29).

Third, Applicant alleges Lal does not suggest "that carbon nanotubes be used in a mixture with alkaline-earth metals," at Remarks page 9, (3). The Examiner respectfully submits that this is not the question at hand. Sugiyama discloses carbon fibers in a mixture with alkaline-earth metals. Lal teaches carbon nanotubes are desirable over carbon fibers. The difference between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains (see Final office action, para.7-25).

Fourth, Applicant is "at a loss as to how the Examiner can view [Sugiyama's] drawings as disclosing 'an electrically conductive material coated with the mixture' given the ordinary meaning of the term 'coated.'" The Examiner would like to reiterate and describe in detail the drawings of Sugiyama and the ordinary meaning of the term "coated." Sugiyama shows in figure 1, an electrically conductive tungsten coil (1') having the mixture (2) filled into the inside of the coil. The following definition of "coated" is taken from Merriam-Webster's Collegiate Dictionary, Tenth Edition; cover or spread with a finishing, protecting, or enclosing layer. Sugiyama's mixture covers the inside surface of the electrically conductive coil, and therefore, the emitter is coated. However, the Examiner notes that the limitation, "coated on," as recited in currently amended claims 1 and 7 leads the Examiner away from Sugiyama's configuration, since "coated on" infers coated on the outside surface of the electrically conductive coil, thereby raising new issues that would require further consideration. .


NIMESHKUMAR D. PATEL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800